

## SolarTech Power Solutions

# Bhutan Solar Outdoor Energy Storage Power Supply



## Overview

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How can Bhutan improve its energy security?

To improve Bhutan's energy security while strengthening resilience to water variation and climate change, it is required to diversify power generation sources and types, including (i) solar farms, rooftop and floating solar, and agrivoltaics; and (ii) storage and pumped storage hydropower and small hydropower. 4 H. Nagai et al. 2017.

How much energy can a rooftop solar system generate in Bhutan?

Bhutan's estimated total energy generation potential from rooftop solar system is 3,586 MW, including specific estimates for Thimphu (789 MW) and Paro (206 MW).<sup>5</sup> In Thimphu alone, there are 1,521 government buildings suitable for rooftop solar installations, with an estimated capacity of 50 MW.

Who owns the energy sector in Bhutan?

Bhutan's energy sector operations have separate commercial management and ownership from the government. The state-owned Druk Green Power Corporation (DGPC) owns and operates power plants while the Bhutan Power Corporation, also state-owned, performs transmission and distribution.

How many solar power systems are there in Bhutan?

As of 2015 there are approximately 4,600 solar power systems operating in Bhutan, with 2,750 on-grid systems and 1,848 off-grid systems. The development potential is estimated at 12,000 megawatts.

How much hydropower does Bhutan have?

Bhutan has an installed capacity of 2,460 megawatts (MW) for hydropower generation. However, during the dry season (December-March), the total generation output drops to approximately 415 MW equivalent due to low river inflows. This is because all the existing plants are run-of-the-river schemes that have no seasonal storage capacity.

What is the power scenario in Bhutan?

The power scenario in Bhutan has undergone a major shift with demand growth especially in the industrial sector outpacing capacity addition. Industrial consumption represented by high voltage consumers has been sharply increasing since 2021. This consumer category has directly increased the overall consumption of Bhutan.

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